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IV. Some Observations of the Mercury's Altitude,  
with the Changes of the Weather at Emüy in  
China. Lat.  $24^{\circ} 20' N.$

By Mr. James Cunningham.

October 1698.

From the 1<sup>st</sup>. to the 8<sup>th</sup>. fair and clear Weather, the Mercury's Altitude,  $29\frac{14}{20}$  Digit.

From the 8<sup>th</sup>. to the 11<sup>th</sup>. close and cloudy Weather, the Mercury falling to  $29\frac{12}{20}$  Digit.

11<sup>th</sup>. Close Weather, somewhat cloudy.

12<sup>th</sup>. Close Weather blowing fresh at *North-east*.

13<sup>th</sup>. and 14<sup>th</sup>. close and cloudy Weather, with much Rain, and fresh Winds from *North-east* to *North-west*.

The Tide, (which commonly flows 3 Fathoms) did flow above half a Foot higher 3 Days after the full Moon, then it did on the full Moon at the Equinox.

15<sup>th</sup>. Fair and clear Weather, with small Gales at *North-east*.

From the 15<sup>th</sup>. to the 24<sup>th</sup>. fine moderate fair Weather, with small Gales about *North-east*, and to the 31<sup>th</sup>. Winds and Weather variable.

November the 1<sup>st</sup>. to the 15<sup>th</sup>. variable, close and cloudy Weather, with some Rain, and variable Gales round the Compas.

15<sup>th</sup>. Fair and clear Weather, with small Gales at *North-east*, in the Morning the Mercury's Altitude  $29\frac{15}{20}$  Digit, at Noon  $29\frac{14}{20}$ ; and at ten of the Night, being cold, rising to  $29\frac{16}{20}$ .

¶. 16th. At Sun-rising very cold, the Mercury's Altitude  $29\frac{18}{20}$ . At Noon fair and pleasant Weather, the Mercury falling to  $29\frac{17}{20}$ . At Night cold, rising to  $29\frac{18}{20}$ . The Wind at *North-east*.

¶. 17th. This Morning cold, the Mercury at  $29\frac{18}{20}$ , fair and clear Weather all Day, and at Night blowing somewhat fresh at *North-east*, the Mercury at  $29\frac{17}{20}$ .

¶. 18th. This Morning cold, the Mercury at  $29\frac{17}{20}$ . All Day fair and pleasant Weather, the Mercury falling to  $29\frac{16}{20}$ , and by Noon to  $29\frac{12}{20}$ . The Weather fair, somewhat close and cloudy; the Afternoon Sun-shining and Warm, and at Night temperate, the Mercury continuing at  $29\frac{12}{20}$ . Small Winds at *North east*, and almost Calm.

¶. 19th. A pleasant Sun shining Morning, the Mercury at  $29\frac{12}{20}$ . At Noon overcast, and cloudy, with little Wind at *North-east*, the Mercury falling to  $29\frac{10}{20}$ . In the Afternoon some drops of Rain, with close Weather, and at Night the Mercury continuing at  $29\frac{10}{20}$ , with small Westerly Winds. Some Rain in the Night.

¶. 20th. Close and cloudy Weather, with small Gales at *North-east*, the Mercury at  $29\frac{10}{20}$  in the Morning, and continued so all day, with some drops of Rain in the Afternoon, the Gale freshning, and a shower of Rain at 8 of the Night, the Mercury rising to  $29\frac{12}{20}$ .

¶. 21st. Gray and cloudy Weather all Day, with fresh Gales between *East* and *North-east*. the Mercury at  $29\frac{12}{20}$ , and at Night rising to  $29\frac{17}{20}$ . Fair Weather, somewhat Cloudy.

¶. 22d. A very cold Morning, fair and clear, with fresh Gales from *North-east* to *North*, the Mercury at 30 Digit. Fair and clear all Day, with a moderate Gale about *North east*: Clear and very cold all Night, the Mercury continuing at 30 Digit.

u. 24th. A fair, clear, and cold Morning, the Wind at *North-east*, a moderate Gale, the Mercury continuing at 30 Digit. A clear Sun-shining Day, cold and clear all Night, the Mercury as before.

g. 25th. A sharp cold Morning, fair and clear, with a moderate Gale at *North west*, the Mercury fallen to  $29\frac{18}{20}$ . All Day fair and pleasant, very warm, and no Wind, the Mercury falling at Noon to  $29\frac{15}{20}$ , and at Night being somewhat Hazy and Calm withal, to  $29\frac{14}{20}$ .

h. 26th. temperate Weather all Night, and this Morning somewhat close and hazy, and no Wind, the Mercury at  $29\frac{14}{20}$ , and towards Noon growing clearer and warmer, rising to  $29\frac{16}{20}$ . Small Brizes at *North-east*, at Night falling to  $29\frac{14}{20}$ , temperate Weather.

o. 27th. Fine pleasant Weather all Day, with small variable Brizes from the *North* to *West*, and about to *South*, the Mercury in the Morning at  $29\frac{14}{20}$ , and at Noon falling to  $29\frac{15}{20}$ , and at Night rising to  $29\frac{14}{20}$ . Fair Weather and Calm.

d. 28th. Fine moderate Weather, with a Gale at *North east*, the Mercury at  $29\frac{14}{20}$ . In the Afternoon the Gale freshn'd, the Weather somewhat Cloudy, and at Night the Mercury was at  $29\frac{15}{20}$ . blowing fresh.

g. 29th. Fair and clear Weather, somewhat cold this Morning, with a fresh Gale at *North-east*; the Mercury at  $29\frac{18}{20}$ . Fine pleasant Weather all Day, with small Gales at *North-east*, at Noon the Mercury falling to  $29\frac{15}{20}$ , and at Night being clear and somewhat cold, rising to  $29\frac{17}{20}$ .

g. 30th. Fair and pleasant Weather, with small Gales at *N. E.* the Mercury at  $29\frac{17}{20}$ . At Noon a fresh Gale, the Mercury falling to  $29\frac{14}{20}$ . At Night temperate Weather, and little Wind, the Mercury rising to  $29\frac{16}{20}$ .

## D E C E M B E R.

2. 1<sup>st</sup>. Fine temperate Weather, with small Gales at *North-east*, the Mercury at  $29\frac{16}{20}$  in the Morning. Fair Weather all Day, and small Brizes at *North-east*, the Mercury at Noon falling to  $29\frac{14}{20}$ , and in the Evening to  $29\frac{15}{20}$ , and at Night rising to  $29\frac{14}{20}$ , being fine clear Weather.

2. 2<sup>d</sup>. Fair and temperate Weather, somewhat Cloudy, and overcast with small Gales at *North-east*, the Mercury at  $29\frac{14}{20}$ , and at Night rising to  $29\frac{15}{20}$ .

2. 3<sup>d</sup>. A clear and cold Morning, with a fine sharp Gale at *North*, and by *East*, the Mercury at  $29\frac{17}{20}$ . A cold Air all Day, the Mercury at Noon falling to  $29\frac{15}{20}$ , and at Night the Gale freshning made it colder, the Mercury rising to  $29\frac{18}{20}$ .

2. 4<sup>th</sup>. A sharp Morning with a fresh Gale at *North* and by *East*, the Mercury at  $29\frac{18}{20}$ . Fair and clear all Day, with a small *Northerly* Gale, the Mercury by Noon falling to  $29\frac{15}{20}$ . A serene temperate Night, and almost Calm, the Mercury as before.

2. 5<sup>th</sup>. A fine clear Morning, with a moderate Gale at *South-west*, somewhat cold, the Mercury at  $29\frac{15}{20}$ . At Noon a small Brize at *East* by *South*, pleasant Weather, the Mercury at  $29\frac{15}{20}$ . At Night a small Gale at *South* by *East*, fair and temperate Weather, somewhat hazy, the Mercury at  $29\frac{13}{20}$ .

2. 6<sup>th</sup>. This Morning somewhat close and Cloudy, with a few drops of Rain, the Weather temperate, with small *Southerly* Brizes, the Mercury at  $29\frac{13}{20}$ . The Afternoon Calm, and somewhat Hazy, the Mercury falling to  $29\frac{10}{20}$ . At Night overcast and Cloudy, with some Rain, blowing fresh at *North*, the Mercury rising to  $29\frac{14}{20}$ .

♀. 7th. A gray Morning, clearing up with a fresh Gale at *North-east*, the Mercury at  $29\frac{17}{20}$ . In the Afternoon the Horizon a little Hazy, the Mercury falling to  $29\frac{15}{20}$ . At Night clearer, with a fresher Gale, the Mercury rising to  $29\frac{18}{20}$ . A very cold Night.

♀. 8th. A sharp clear Morning, with a fine Gale at *North-east*, the Mercury at 30 Digit. At Noon falling to  $29\frac{18}{20}$ , a fine Sun-shining Day. At Night cold and clear, a small Gale at *North-east*, the Mercury rising to 30 Digit.

♀. 9th. This Morning as the last, all Day and Night the same, and the Mercury also.

♂. 10th. A cold Morning, somewhat Foggy, with a fine Gale at *North-east*, the Mercury at 30 Digit, all Day Fair, Clear and Sun-shining. At Night cold, the Mercury at  $29\frac{19}{20}$ .

♀. 11th. A cold Morning, with a moderate Gale at *North-west*, the Mercury at  $29\frac{19}{20}$ . All Day fair and clear, the Mercury falling to  $29\frac{16}{20}$ . At Night a fresh Gale at *North-east*, the Mercury at  $29\frac{19}{20}$ .

♂. 12th. A gray cold Morning, somewhat Cloudy, with a hazy Horizon, a fresh Gale at *North-east*, and the Mercury at  $29\frac{19}{20}$ , towards Noon falling to  $29\frac{17}{20}$ , with little Wind, and fair Weather; at Night calm and somewhat cold, the Mercury rising to  $29\frac{18}{20}$ .

♂. 13th. A fine pleasant Morning, with a small Brize at *North-west*, the Mercury at  $29\frac{18}{20}$ . At Noon a small Gale at *North-east*, and in the Afternoon Calm, the Mercury falling to  $29\frac{14}{20}$ . All day Serene, at Night Calm, with a clear Sky, somewhat cold, the Mercury rising to  $29\frac{15}{20}$ .

♀. 14th. A fine temperate Morning, with some small Rain like Dew, and a moderate Gale at *South west*, the Mercury at  $29\frac{15}{20}$ . The Afternoon a little overcast, and the Horizon somewhat Hazy, a small Gale at *South-east*, the Mercury falling to  $29\frac{12}{20}$ . At Night Temperate and Calm, the Mercury rising to  $29\frac{14}{20}$ .

♀. 15th. A fine temperate calm Morning, the Mercury at  $29\frac{15}{20}$ . At Noon fair, pleasant, calm Weather, the Mercury fallen to  $29\frac{12}{20}$ . All the Afternoon, and at Night a fresh Gale at *North-east* fair Weather, the Mercury rising to  $29\frac{15}{20}$ .

♀. 16th. A gray cloudy Morning, somewhat Hazy, with a fresh Gale at *North-east*, the Mercury at  $29\frac{17}{20}$ . At Noon fair and clear, the Gale moderate, and the Mercury falling almost to  $29\frac{14}{20}$ . The Afternoon somewhat Cloudy with a fine Gale at North East; At Night a little Wind, serene and sharp, the Mercury rising to  $29\frac{18}{20}$ .

♂. 17th. A Gray Morning somewhat cold with a fine Gale at North East, the Mercury at  $29\frac{17}{20}$ , and at Noon falling to  $29\frac{15}{20}$ . At Night little Wind, the Mercury rising to  $29\frac{16}{20}$ .

♀. 18th. A fair temperate calm Morning somewhat foggy, the Mercury at  $29\frac{15}{20}$ . All Day fair Weather somewhat Cloudy with small Winds at North East, the Mercury falling to  $29\frac{15}{20}$ . At Night blowing fresh, the Mercury rising to  $29\frac{18}{20}$ .

♂. 19. A Gray cloudy Morning with a fresh Gale at North East, the Mercury at  $29\frac{18}{20}$ . Close Thick Weather, with continual Rain all Day and Night, and a moderate Gale at North East; at Night the Mercury rising to  $29\frac{19}{20}$ .

♀. 20th. Close thick Rainy Weather, the Morning with a moderate Gale at North East, the Mercury falling below  $29\frac{18}{20}$ . And by Noon to  $29\frac{16}{20}$ , continual thick rainy Weather all Day and Night, the Mercury at  $29\frac{16}{20}$ , and the Gale as before.

♀. 21st. A gray cloudy Morning but fair and beginning to clear up and Calm withal, the Mercury at  $29\frac{14}{20}$ , at Noon fair Weather, and somewhat clear, with a small Gale at *South-West*, the Mercury falling to  $29\frac{12}{20}$ . At Night calm and somewhat cloudy, the Mercury at  $29\frac{14}{20}$ .

♀. 22d. A gray cloudy Morning continuing so all Day with a small Gale at *North-East*, the Mercury at  $29\frac{14}{20}$ , at Night rising to  $29\frac{15}{20}$ .

♀. 23d. A gray cloudy Morning, continuing so all Day, with small Gales at *North-East*, the Mercury at  $29\frac{14}{20}$ , at Night more serene the Mercury rising to  $29\frac{15}{20}$ .

♀. 24th. A gray Morning and calm Weather, the Mercury at  $29\frac{15}{20}$ , close and cloudy Weather all Day and no Wind, the Mercury falling to  $29\frac{14}{20}$ . At Night rising almost to  $29\frac{15}{20}$ .

♀. 25th. A gray cloudy Morning, (some Rain before Day light) with small *Southerly* Brizes, the Mercury at  $29\frac{14}{20}$ . Towards Sun-shining and pleasant, little Wind variable, the Mercury falling to  $29\frac{15}{20}$ . The Afternoon and at Night overcast and cloudy, the Wind at *South by East*, and the Mercury rising to  $29\frac{15}{20}$ .

♂. 27th. A fine pleasant Morning, with a hazy Horizon, and altogether calm, the Mercury at  $29\frac{13}{20}$ , and by Noon at  $29\frac{10}{20}$ . All Day pleasant Weather, and at Night small Gales at *North-East* the Mercury rising to  $29\frac{12}{20}$ .

♀. 28th. A fine pleasant Morning with a small Brize at East North East, the Horizon somewhat hazy and the Mercury at  $29\frac{11}{20}$ . at Noon falling to  $29\frac{10}{20}$ . All Day fair and pleasant Weather with the foreaid Brize. At Night calm, the Mercury falling almost to  $29^{\circ}$ .

♂. 29th. A gray Morning, with a close Horizon, and a small Brize about East-North-East, the Mercury at  $29\frac{9}{20}$ . Calm all the Forenoon, in the Afternoon pleasant Weather, with a small Gale of South-East, the Mercury at  $29\frac{6}{20}$ . At Night calm, the Mercury at  $29\frac{7}{20}$ .

♀. 30th. A gray cloudy Morning, and close Weather, with a fresh Gale at South-East, the Mercury at  $29\frac{8}{20}$ .

All Day cloudy and dark, the Gale freshning and veering to *East-North-East*, the Mercury rising to  $29\frac{12}{30}$ .

¶. 31st. Gray cloudy Weather all Day, with a fresh Gale at *North-East*; in the Evening some Rain blowing fresh all Night.

### *JANUARY.*

○. 1st. Variable Weather with small Gales at *North-East*.

○. 2d. Rainy thick Weather all Day and Night with little Wind at *North-East*.

○. 3d. Continual thick rainy Weather all Day and Night, the Wind at *North-East*.

○. 4th. Fair Weather somewhat close, and calm all Day and Night.

○. 5th. Close Weather with some Rain and Calm this Forenoon; and in the Afternoon a small Brize at *West-North-West*. Departed from Emiyy.

*V. Part of a Letter from Dr. David Gregory, to Dr. Sloane, dated Oxford, October 12. 1699. containing his observations of the Eclipse of the Sun on the 13th of September last.*

I Send you a Scheme of the Phases of the late Eclipse of the Sun, (*see the Table*) as I observ'd them. I did not see the beginning of it: But the end happened here, precisely Twenty four Minutes and Nine seconds after Ten a Clock in the Morning, apparent Time, and all the Times marked in the Figure are such: The greatest Obseryation, which was Ten Digits and a Quarter, was about Seven Minutes after